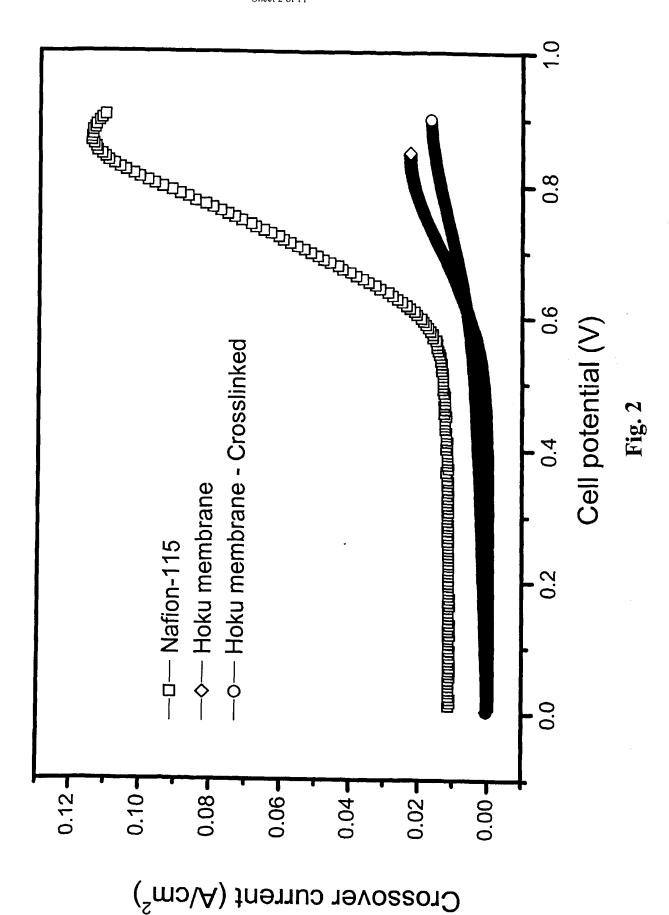
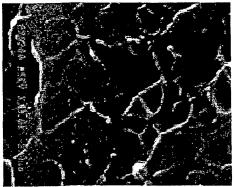
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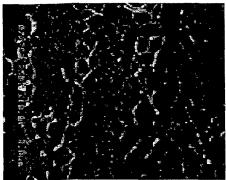
	Mechanical Properties of Cross-linked Membranes	Cross-linked Me	mbranes				
lon-conducting base material	Cross-linking additive	Tensile (25C, 50% RH)	ensile (25C, Tensile (70C, 50% RH) under water)	Modulus (25C)	Modulus (70C)	% Elog. (25C)	% Elog (70C under water)
35% Sulfonated Poly Ether Ketone (sEK)	None	2.3	1.6	38.0	35.0	49.0	81.0
35% spek 35% spek	1% PEK (5000amu)	2.5	1.4	16.0	12.0	117.0	162.0
35% sPEK	5% FEX (5000 amu) 5% PEK (5000 amu)	4.0	2.9	89.0	92.0	153.0 89.0	78.0
	None						
A THE STATE OF STATE	A STATE OF THE PROPERTY OF THE	2.3.5		0 63	46(1)		187 No. (124 Old 1970)
At the true 185% SPEKER CORP.	1	43.5		2000			
	None						
35% sPEK	1% SPEK (2500 amu, 20% Sulfonated)	2.7	2.2	120.0	72.0	19.5	131.0
35% sPEK	3% sPEK (2500 amu, 20% Sulfonated)	2.6	1.7	60.3	43.0	28.0	81.0
35% sPEK	5% sPEK (2500 amu, 20% Sulfonated)	2.4	1.7	56.4	35.4	33.6	114.8

Fig. 1

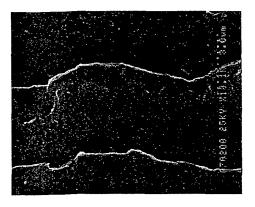




Picture-1: SEM Image of membrane cross-linked with a 5000 amu cross-linking agent (10.1K Mag.)



Picture-2: SEM image of membrane cross-linked with a 3000 amu cross-linking agent (10.1K Mag.)



Picture-3: SEM image of membrane cross-linked with a 2500 amu Sulfonated cross-linking agent (10.1K Mag.)

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5% PEK (5000 amu) Water Uptake of 35% Sulfonated Ether Ketone Membranes Cross-linked with 5000amu non-Sulfonated Ether Ketone Cross-linking Agent (90°C for 24 hrs) 3% PEK (5000 amu) Amount of Cross-linking Agent 1% PEK (5000amu) None Wat r Uptak (wt. %) ق څ څ 8 2 8 20 9

Fig. 4

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Water Uptake of 35% Sulfonated Polyether Ketone Membranes Cross-linked with 3000amu non-Sulfonated Polyether Ketone Cross-linking Agent (90°C for 24 hrs)

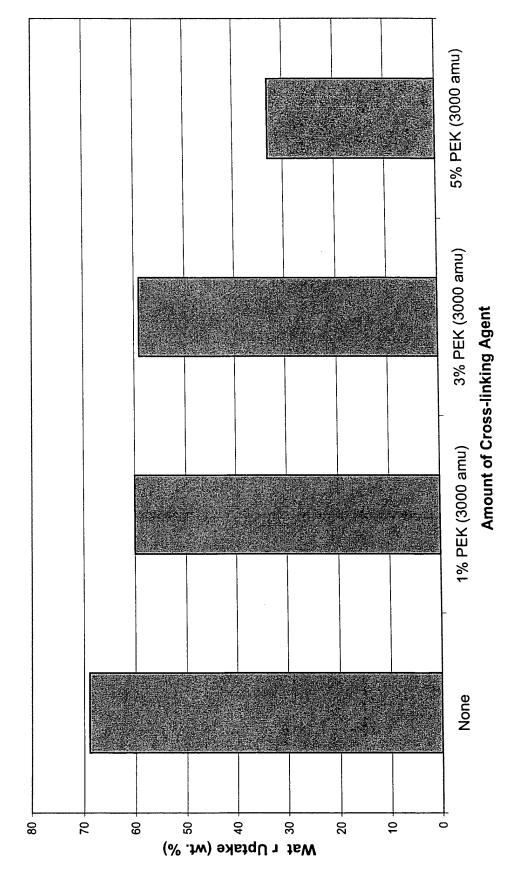


Fig. 5

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5% sPEK (2500 amu, 20% Sulfonated) Water Uptake of 35% Sulfonated Polyether Ketone Membranes Cross-linked with 2500amu 20% Sulfonated Polyether Ketone Cross-linking Agent (90°C for 24 hrs) 3% sPEK (2500 amu, 20% Sulfonated) 1% sPEK (2500 amu, 20% Sulfonated) None 8 2 Wat r uptake (wt. %) 8 20 9

Amount of Cross-linking Agent

Conductivity vs. Temperature for Different Levels of Sulfonated Cross-linking Agent (sPEK Base Ion-conducting Material)

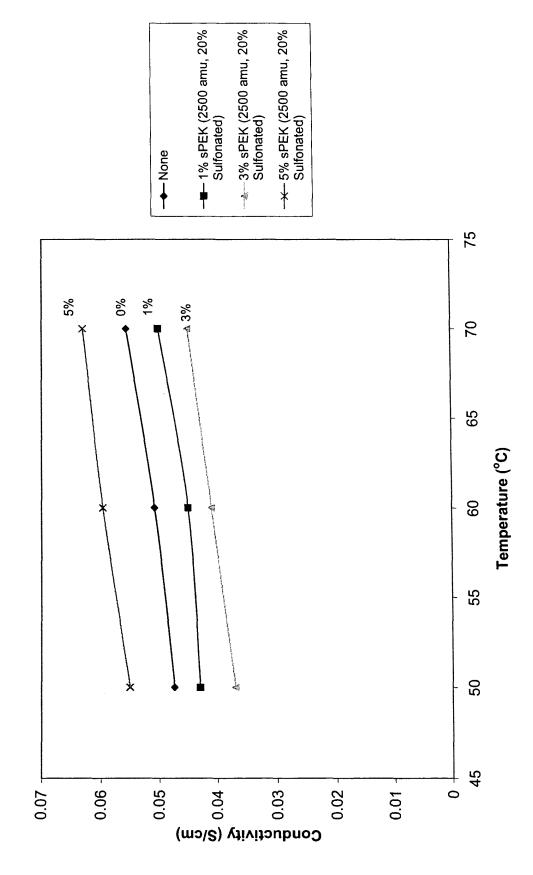
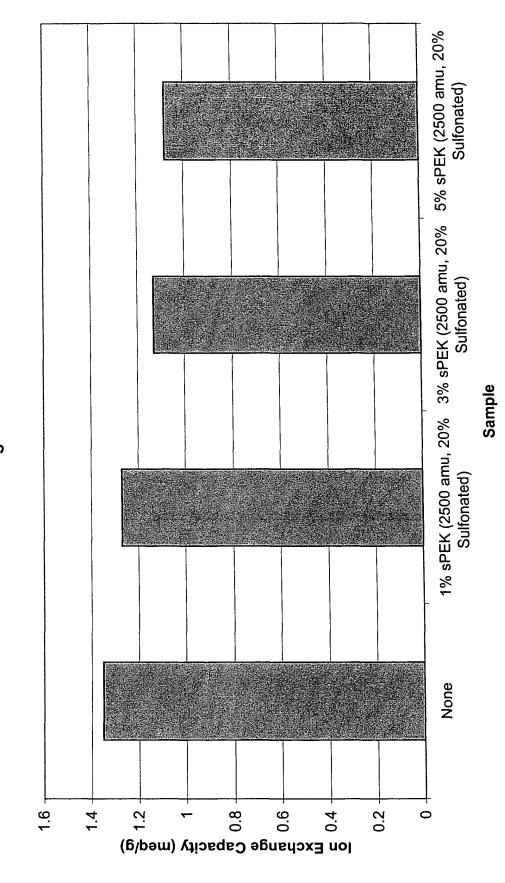


Fig. 7

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Ion Exchange Capacities (IEC) of 35% Sulfonated Polyether Ketone Membranes Cross-linked with 2500amu 20% Sulfonated Polyether Ketone Cross-linking



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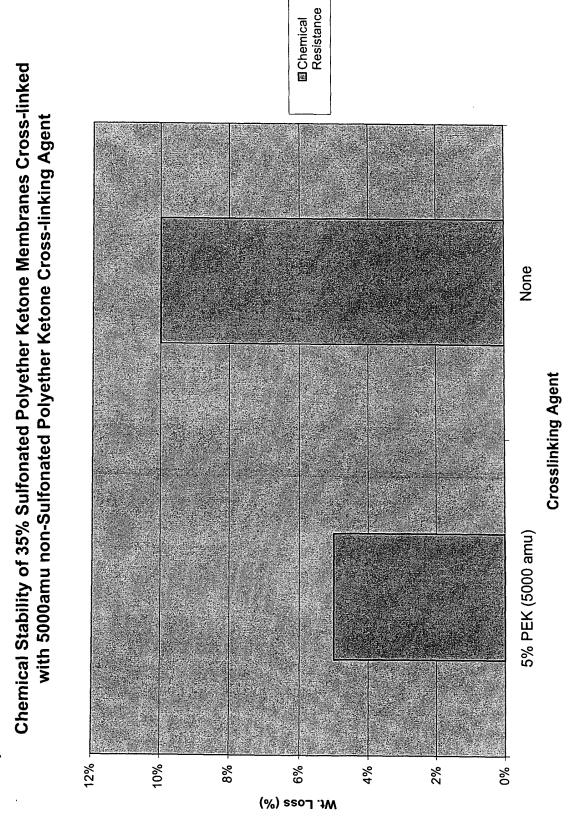


Fig. 0

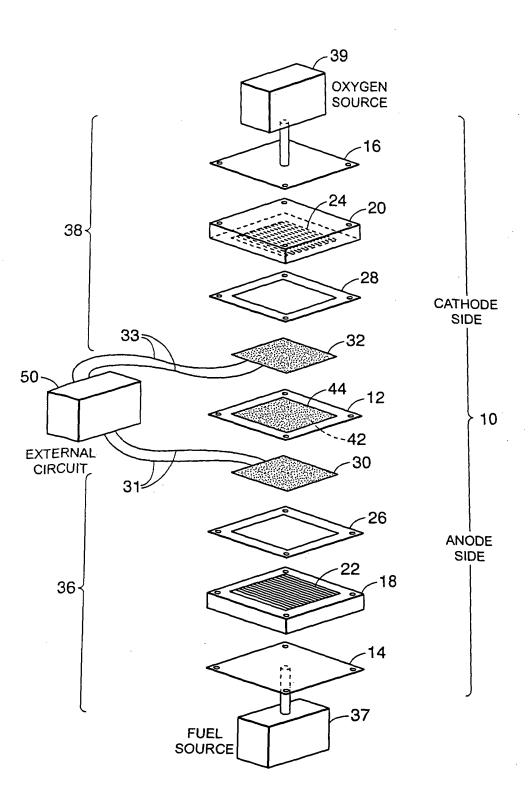


Fig. 10

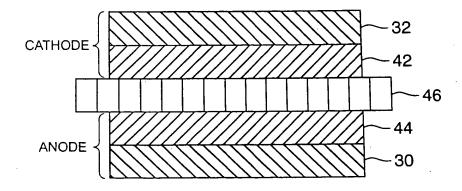


Fig. 11

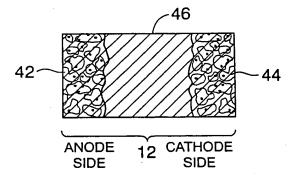


Fig. 12